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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/575,011	04/07/2006	Stefano Landi	2502-1093	7039

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EXAMINER	
BOECKMANN, JASON J	

ART UNIT	PAPER NUMBER
3752	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/575,011	LANDI, STEFANO	
	Examiner	Art Unit	
	Jason J. Boeckmann	3752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *4/7/2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/7/2006 7/7/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 21-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim(s) are narrative in form and replete with indefinite and functional or operational language. The structure which goes to make up the device must be clearly and positively specified. The structure must be organized and correlated in such a manner as to present a complete operative device. Note the format of the claims in the patent(s) cited.

The claims are replete with errors too numerous to mention specifically. The following noted informalities are merely exemplary thereof.

Regarding claim 21, it is not clear which end is being referred to by the term, "said end," of line 13 of the claim. Is it referring to the end of the delivery conduit, the end of the seal member, or some other end? Secondly, it is not clear if the tapered end (line 15) of the frusto-conical seal element, is the same end as the “that end thereof which cooperates with an end of the delivery tube,” of line 11, or a different end.

Regarding claim 21, it is not clear what is meant by the term “in that face or first face” of line 18. Is the 'that face" and the “first face” that same face, or are they different faces? If they are different faces, then which face is the seal member provided in? Secondly, there is insufficient antecedent basis for the limitations “that face” and “first face” in the claim.

Regarding claim 21, it is not clear what is made of an elastomeric material, as indicated in the last line of the claim. Is it the seal member or the face of the interceptor member?

Claim 23 recites the limitations "the wall of the recess," and “inner wall of the seal element” in line 2. There is insufficient antecedent basis for this limitation in the claim. Secondly, it is not clear if the “wall of the recess” and “the inner wall of the seal element” are the same wall, or if they are different walls.

Claim 25 recites the limitation "the member" in line 5. There is insufficient antecedent basis for this limitation in the claim. Is “the member” referring to the seal element, the interceptor member, or a completely different member?

Regarding claim 28, it is not clear what is meant by the term “on that face or second face” of line 3. Is the “that face" and the “second face” that same face, or are they different faces? If they are different faces, then which face is the seal member provided in? Secondly, there is insufficient antecedent basis for the limitations “that face” and “first face” in the claim.

Claim 34 recites the limitation "that end" in 3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 21-24, 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ausman et al. (6,364,282), in view of Mayer (4,258,749).

Ausman et al. shows an electrically operated injector comprising an electromagnetic actuator (205) acting on a mechanical interceptor member (207) arranged to free or intercept a passage for of fuel from a feed conduit (223) to a delivery conduit (231) connected to an outlet (273), a seal element (209) being positioned between the delivery conduit and said interceptor member, the seal element being fixed to the interceptor member and moving with it, the seal element includes a recess (219) in and end thereof which cooperates with an end of the delivery conduit (231) when the injector is deactivated, the end being annular, and in that the seal element is of frusto-conical shape and rests with its tapered end on the end of the delivery conduit when the injector is deactivated and the gas passage is intercepted by the interceptor member, the seal element being fixed in a seat (where the seal element touches the interceptor member) provided in a face of interceptor member that faces the delivery conduit, but does not specifically disclose that the seal member is made of an elastomeric material.

However, Mayer shows an electrically operated valve including a interceptor member (364) that intercepts a passage and includes a frusto conical seal member (370) which is made of an elastomeric material (column 6, line 47), that is used to free and intercept the passage.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to make the seal member (209) of Ausman et al.'s electrically actuated valve out of an elastomeric material, similar to the valve of Mayer in order to achieve the expected result of a tighter, leak proof seal.

Regarding claim 22, Ausman et al. as modified by Mayer above includes all aspects of the applicant's invention as discussed above, but does not specifically disclose that the seal element is co-molded with the seat of the interceptor member. However, it would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to make the seal element co-molded with the seal of the interceptor member, since it has been held that forming in one piece an article which has formally been formed in two pieces and put together involves only routine skill in the art.

Regarding claim 28, the interceptor member includes an annular projecting part (27) on its second face that rests against the actuator.

Regarding claim 30, Ausman et al. as modified by Mayer above, includes all aspects of the applicant's invention as discussed above, but does not specifically disclose that the projecting part is a separate part from the interceptor member. However, it would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to make the projecting part a separate part form the interceptor

member, since it has been held that constructing a formally integral structure in various elements involves only routine skill in the art.

Claims 21-24 and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al. (5,924,674).

Hahn et al. shows an electrically operated injector comprising an electromagnetic actuator (6) acting on a mechanical interceptor member (18) arranged to free or intercept a passage for of fuel from a feed conduit (32) to a delivery conduit (16) connected to an outlet, a seal element (20) being positioned between the delivery conduit and the interceptor member, the seal element being fixed to the interceptor member and moving with it, the seal element includes a recess (29) in and end thereof which cooperates with an end of the delivery conduit (16) when the injector is deactivated, the end being annular, the seal element being fixed in a seat (where the seal element touches the interceptor member) provided in a face of interceptor member that faces the delivery conduit, and that the seal member is made of an elastomeric material (the sealing ring or gasket 28), but does not specifically disclose that the seal element is of frusto-conical shape and rests with its tapered end on the end of the delivery conduit when the injector is deactivated and the gas passage is intercepted by the interceptor member.

The Hahn et al. reference discloses a seal element having a flat sealing surface that seats against an end of a delivery tube having a flat surface, however, it is noted that if the seal element was frusto-conical in shape and the seat at the end of the delivery conduit was also frusto-conical in shape, similar to the present invention, the frusto-conical sealing member would have more surface area contacting the frusto-conical seat, than with the configuration shown in Hahn et al. Therefore, it would have been obvious for one of ordinary skill in the art at the time of the applicant's invention to try a frusto-conical seal element and a frusto-conical seat at the end of the deliver conduit to achieve the predictable result of a tighter, leak proof seal.

Regarding claim 22, Hahn et al. as modified above, includes all aspects of the applicant's invention as discussed above, but does not specifically disclose that the seal element is co-molded with the seat of the interceptor member. However, it would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to make the seal element co-molded with the seal of the interceptor member, since it has been held that forming in one piece an article which has formally been formed in two pieces and put together involves only routine skill in the art.

Regarding claim 28, the interceptor member includes an annular projecting part (27) on its second face that rests against the actuator.

Regarding claim 30, Hahn et al. as modified above, includes all aspects of the applicant's invention as discussed above, but does not specifically disclose that the projecting part is a separate part from the interceptor member. However, it would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to

make the projecting part a separate part form the interceptor member, since it has been held that constructing a formally integral structure in various elements involves only routine skill in the art.

Claims 21-24 and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al. (5,924,674), in view of Mayer (4,258,749).

Hahn et al. shows an electrically operated injector comprising an electromagnetic actuator (6) acting on a mechanical interceptor member (18) arranged to free or intercept a passage for of fuel from a feed conduit (32) to a delivery conduit (16) connected to an outlet, a seal element (20) being positioned between the delivery conduit and the interceptor member, the seal element being fixed to the interceptor member and moving with it, the seal element includes a recess (29) in and end thereof which cooperates with an end of the delivery conduit (16) when the injector is deactivated, the end being annular, the seal element being fixed in a seat (where the seal element touches the interceptor member) provided in a face of interceptor member that faces the delivery conduit, and that the seal member is made of an elastomeric material (the sealing ring or gasket 28), but does not specifically disclose that the seal element is of frusto-conical shape and rests with its tapered end on the end of the delivery conduit when the injector is deactivated and the gas passage is intercepted by the interceptor member.

However, Mayer shows However, Mayer shows an electrically operated valve including a interceptor member (364) that intercepts a passage and includes a frusto conical seal member (370) which is made of an elastomeric material (column 6, line 47), that is used to free and intercept the passage.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to make the seal member (20) of Hahn et al.'s electrically actuated valve frusto-conical in shape, similar to the valve of Mayer in order to achieve the expected result of a tighter, leak proof seal, as taught by Mayer (column 6, lies 50-55).

Regarding claim 22, Hahn et al. as modified by Mayer above includes all aspects of the applicant's invention as discussed above, but does not specifically disclose that the seal element is co-molded with the seat of the interceptor member. However, it would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to make the seal element co-molded with the seal of the interceptor member, since it has been held that forming in one piece an article which has formally been formed in two pieces and put together involves only routine skill in the art.

Regarding claim 28, the interceptor member includes an annular projecting part (27) on its second face that rests against the actuator.

Regarding claim 30, Hahn et al. as modified by Mayer above, includes all aspects of the applicant's invention as discussed above, but does not specifically disclose that the projecting part is a separate part from the interceptor member. However, it would have been obvious to one of ordinary skill in the art at the time of the

applicant's invention to make the projecting part a separate part form the interceptor member, since it has been held that constructing a formally integral structure in various elements involves only routine skill in the art.

Allowable Subject Matter

Claims 25, 26 and 31-37 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Caldwell (3,422,850), Gallup et al. (4,909,447), Knapp et al. (4,365,747), Hahn et al. (6,131,880) and Gernert II (5,381,966) all show valves with similar features to that of the present invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason J. Boeckmann whose telephone number is (571)272-2708. The examiner can normally be reached on 8:00- 5:00, Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Len Tran can be reached on (571) 272-1184. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. J. B./
Examiner, Art Unit 3752
4/4/208
/Len Tran/
Supervisory Patent Examiner, Art Unit 3752